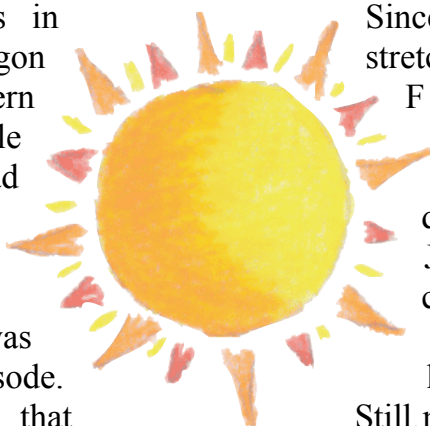




Havin' a Heatwave

by Diana Koester, Journeyman Meteorologist

July of 2006 was a very hot period across the region, with many locations breaking record high temperatures in both Eastern Oregon and Southeastern Washington. While many locations had an unusually long stretch of hot weather this July, it was not a unique episode. Records indicate that there were other periods prior to this year that had longer stretches



of hot weather, as well as higher temperatures. An example of this is with Yakima, Washington. Since 1909, the longest stretch of 100 degrees F and higher is in 1981 with 7 consecutive days. In relation, July of 2006 had 4 consecutive days of 100 degrees F and higher.

Still, many locations spent several days over 100 degrees. The City of John Day in Oregon spent 5 consecutive days above 100 degrees before dropping to 98 for a few days and then returning to 100 degrees. Overall, John Day spent 10 consecutive days with a temperature of 97 degrees and higher. Walla Walla, Washington also had 5 consecutive days above 100 degrees, with a total of 8 consecutive days 96 degrees

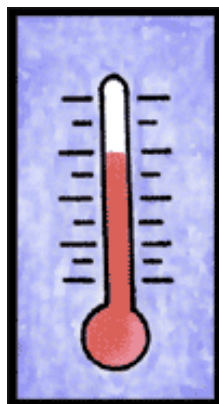
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and higher. Pasco, Washington had a stretch of 7 consecutive days of 100 degrees and higher and Sunnyside, Washington had 8 consecutive days of 99 degrees and higher.

Aside from the long periods of hot weather, two locations broke their all-time record high temperature. Ellensburg, Washington reached 106 degrees with the previous record being 103 set in August of 2004. The record period for Ellensburg goes back to 1901. Sunnyside, Washington also set their all-time record high temperature with 111 degrees, while the previous record was 110 in July of 1998. For Sunnyside, the record period goes back to 1948.



Maximum High Temperatures In 2006

Location	Record Began	7/20	7/21	7/22	7/23	7/24	7/25
In Oregon...							
Cove	1917	92	100	99	100	97	92
John Day (City)	1953	100	106	104	104	100	98
Meacham	1948	85	93 (T)	94	95	92	87
Pendleton (Airport)	1934	96	103	105	106	103	98
Pendleton (Downtown)	1890	98	105	107	109 (T)	103	98
Redmond	1949	95	102	96	104	99	94
The Dalles	1948	100	108	98	108 (T)	102	96
In Washington...							
Ellensburg	1901	97	103	98	106 *	95	93
Kennewick	1948	97	104	107	109	104 (T)	102
Pasco	1945	95	103 (T)	109	112	108	102
Sunnyside	1948	99	105	107	111 *	107	103
Walla Walla	1949	100	104	106	108	103	98
Yakima	1909	95	102	102	109	102	99

Temperatures are in degrees Fahrenheit. Bold values indicate record temperatures for that day, (T) indicates a tie with the previous record, while a star (*) next to the value indicate an all-time record high.

Winter Climate Outlook

by Jon Mittelstadt, Science & Operations Officer

The single biggest influence in determining climate outlooks is the El Niño / La Niña cycle. The El Niño / La Niña cycle is a change in ocean and atmospheric conditions across the tropical Pacific Ocean, which in turn can influence the seasonal climate just about anywhere on earth. Over the last few months, weak El Niño conditions have developed. For example, sea-surface temperatures across much of the equatorial Pacific are averaging about 1 to 2 degrees F above normal.

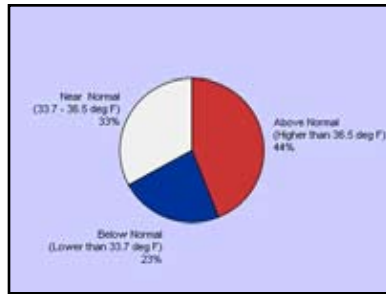
Climate scientists expect El Niño conditions to continue through at least April-May 2007. Conditions are currently in the “weak” category but may develop into the “moderate” category by the end of the year.

For eastern Oregon and Washington, El Niño winters have a tendency to be somewhat on the warm and on the dry side of normal. (During El Niño, the Pacific Storm Track is located further south and Pacific moisture and/or Arctic cold air are less likely to enter our area.) However, not every El Niño winter has been dry, nor have they all been

warm. There is some evidence that moderate El Niño winters are the ones most likely to be dry and warm in our area.

The Climate Prediction Center (CPC) December-January-February temperature outlook for eastern Oregon and Washington shows a tilt in the odds towards warmer

than normal temperatures. For example, the following pie chart for Richland, Washington for the December-January-February averaged temperature shows a



33% chance of near normal, a 23% chance for below normal, and a 44% chance for above normal averaged temperatures.

The CPC precipitation outlook for December-January-February shows a tilt in the odds away from a wetter than normal winter, and towards normal-to-below-normal precipitation totals. It is important to keep in mind that these outlooks are for average conditions only. For example, strong and dangerous winter storms can still occur during a season that overall has warmer and drier than normal conditions.

Center Weather Service Unit

by Robert Cramp, Journeyman Meteorologist

Aviation forecasting is a very important part of the National Weather Service. All Weather Forecast Offices prepare aviation forecasts for the airports in their area of responsibility. The Pendleton WFO prepares terminal forecasts for 6 of the larger airports in the region. In addition to this, the Aviation Weather Center prepares products for the entire country. These include icing, turbulence, low ceiling and thunderstorm forecasts. Another aspect of the NWS aviation program is the Center Weather Service Unit or CWSU. These are located at large air traffic control centers across the country. Currently there are 21 Air Route Traffic Control Centers ARTCC in the United States. Controllers in these centers handle all air traffic within their area...usually covering several states. Because weather is such an important concern for aviation...each ARTCC has a CWSU staffed by meteorologists. These forecasters provide detailed up to the minute weather information to the controllers and supervisors. En route weather as well as surface conditions near the airports are the most important.

The National Airspace System has a huge volume of air traffic flying through it every day. Weather can have a major impact. Significant weather such as thunderstorms or a snow storm...or perhaps a small area of weather over a large airport (hub) can create problems for pilots and controllers. Delays can quickly accumulate and spread across the country. Anticipating weather problems can help controllers and supervisors plan ahead and keep air traffic flowing as smoothly as possible. CWSU meteorologists work with these supervisors keeping them briefed on the latest weather developments. A good forecast especially for a hub airport such as Seattle or Portland can help keep airplanes flying safely and on schedule. Each CWSU is staffed by 4 meteorologists. These forecasters are monitoring conditions aloft such as icing and turbulence...as well as surface conditions such as visibility or low level wind shear. Forecasts, briefings and warnings are provided on a daily basis. For the Pacific Northwest the ARTCC and CWSU is located in Seattle. Here are a few web sites you can visit for further information:

<http://www.wrh.noaa.gov/zse/briefer.php>

<http://aviationweather.noaa.gov>

ODOT Winter Weather Operations

by David Neys, ODOT Manager, W7PDQ, DESCHUTES-75H

As most drivers know, winter storms and other severe weather conditions can be very stressful and dangerous, especially when crowded with weekend or holiday traffic. For the Oregon Department of Transportation (ODOT), those highway conditions become a high priority and can put a strain on the department's limited resources such as the plows and sanders used to fight the weather battle.

As an ODOT supervisor, and amateur radio operator, who has worked on Oregon's highways for nearly 30 years, I am always looking for ways to improve our level of service and highway safety. Born and raised in Gilliam County, I have spent my entire career in Central and Eastern Oregon and helped to shape the way ODOT crews gather and use weather related information to be more effective during storms.



One of the limits our agency has is that of the labor and equipment needed to keep up with storms and monitor the thousands of highway miles during the winter. Because we do not have the staff for a full 24-hour per day operation, we rely on forecasts and observations to help decide when to deploy those limited plows and sanders in the most effective way. The National Weather Service (NWS) is our primary source of weather forecasts for our winter and storm operations.

ODOT also uses a network of remote weather stations and cameras to help prioritize where to send the limited resources we have. Since many of our rural maintenance crews may drive over an hour to reach one end of their

Continued on page 9...

Winter Weather Reporting Criteria

by Dennis Hull, Warning Coordination Meteorologist

Your reports during the winter can ensure your local National Weather Service warnings are accurate and timely. Radar doesn't track winter storms very well and your report may be the only information we have to issue, extend, or cancel a warning. Send an e-mail to dennis.hull@noaa.gov

Here Is What Information We Are Looking For In Various Areas

Snow: In the Blue Mountains and East Slopes of the Washington Cascades, report snow amounts of 6 inches or more in 12 hours or less. All other areas, report snow amounts of 4 inches or more in 12 hours or less. If possible make note of the time the snow started and ended.

Wind: Any sustained wind of 40 miles per hour or any gust over 55 mph. Also, report anytime there is damage due to wind such as trees or large limbs greater than 2 inches in diameter downed, buildings/roofs damaged, power lines down, vehicles blown off road.

Fog, Dust, Blowing Snow: Anytime visibility is $\frac{1}{2}$ mile or less, or if travel is being impacted.

Freezing rain or Freezing Drizzle: Report when it starts, when it impacts travel, when power lines or tree limbs are damaged.

Heavy Rain/Flooding: Report any kind of flooding, rockslides, or mudslides. Report rainfall of $\frac{1}{2}$ inch or more per hour.

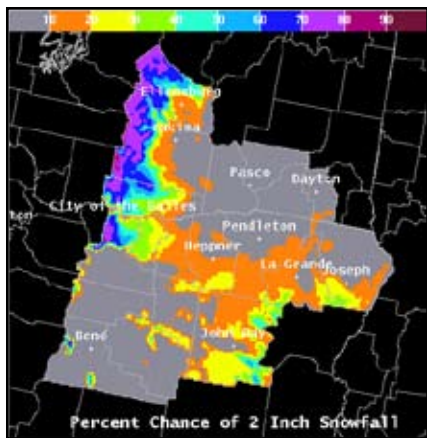
When the National Weather Service receives your spotter report of significant weather, it is entered into Local Storm Reports and sent to the media, other weather offices, and the internet. You can check your report and other reports on line at weather.gov/pendleton, click on Current Conditions, Observations and then Local Storm Reports.

To get all the latest weather information, see
The National Weather Service on the web at
weather.gov/pendleton

Snow Amount Forecasts

by Dennis Hull, Warning Coordination Meteorologist

Snow forecasts from the National Weather Service include not only the snow amounts, but also the probability for 2, 4, or 6 inches of snow. You can see the snowfall forecast for your location on the internet at www.weather.gov/pendleton



On the left hand menu, Click on Prototype Forecasts...Digital, then click Table for “Display Style”, and the desired forecast duration and location. The resulting table will give you the spot forecast with snow amounts.

If you want the probability for at least 2, 4, or 6 inches of snow, go to

Weather.gov/Pendleton and click on “Graphical Hazards” on the left hand menu.



Get Warnings Fast!

by Dennis Hull, Warning Coordination Meteorologist

Why wait for the 11 p.m. news to find out tomorrow’s forecast? Get your local forecast, advisories, and warnings now by checking out **weather.gov** on the internet or listening to NOAA Weather Radio.

Weather.gov/pendleton is the official National Weather Service website for much of eastern Washington and eastern Oregon. It pops up with a map highlighted with warning areas. Click your location on the map and get the latest forecast and warnings with current local conditions. Watch the progress of storms using the satellite and radar pictures.

Remember to take along your portable NOAA Weather Radio when you travel. There are over 1000 transmitter locations across the country, so your official weather forecast is always as close as your weather radio. Weather radios also make a great gift for weather watchers. A list of weather radios and transmitter locations can be found at **www.weather.gov/nwr**.

Precipitation Summary

by Marilyn Lohmann, Service Hydrologist

Although we saw hot and very dry conditions through much of summer, the water year precipitation was above normal for most the area. The above normal precipitation was due in large part to the very wet periods stretching from December 2005 through much of January 2006 and from May through June of 2006.

Stations	Oct 2005 - Sep 2006 Precipitation	Percent of Normal
Bend	17.03	145%
Condon.....	16.69	115%
Dayville	12.27	108%
Dufur.....	17.95	134%
Grizzly.....	18.71	139%
Heppner	15.77	111%
John Day City.....	13.59	100%
Joseph	16.72	99%
La Grande	14.44	82%
Madras 2 N.....	13.80	115%
Meacham	36.24	97%
Milton Freewater	17.16	108%
Mitchell 2 NE	15.09	133%
Pendleton Airport	14.64	115%
Pilot Rock	18.36	128%
Prineville.....	13.73	131%
Seneca	15.80	116%
The Dalles	19.38	134%
Union Exp Sta	12.89	89%
Walla Walla	18.97	109%
Wickiup Dam	26.05	118%
Ellensburg.....	13.33	146%
Glenwood.....	34.41	112%
Hanford.....	8.43	122%
Ice Harbor Dam	14.53	133%
Mount Adams RS.....	40.94	94%
Prosser	12.61	155%
Sunnyside.....	10.36	144%
Whitman Mission.....	16.18	112%
Yakima Airport	10.07	122%

assigned highway segment, a remote weather station and/or observation can save a wasted trip, under good conditions, and allow the operator to go a different direction where road conditions may be much worse. This weather data is also shared with the NWS so it can be used to support their forecasting operations. As many drivers know, ODOT also gathers and distributes our road and weather data, along with camera images, on our public tripcheck.com web page and 511 phone system.

Even with a network of weather stations, cameras, and forecasts to help prioritize our response, highway crews still rely heavily on observations and reports from citizens and trained observers to “fill in the blanks” where other reporting methods are unavailable. There is nothing like a good set of eyes driving the roads, and reporting what they see, to help us evaluate and prioritize our storm response.

Winter driving is never going to be a pleasant experience during the most severe conditions, and we all play a part using technology, forecasters, and volunteers to reduce the chances of a dangerous highway incident from occurring. Drive safely and have a good winter.

“Weather Words”

Word Search Puzzle

See if you can find all of the hidden words in the letters below. Words can be arranged left, right, up, down or diagonally. Answer key is on page 11.

N O I T A T I P I C E R P E Z N I F T S I S U B I
A N I N A L B D L R R R Z R J P U U N R F V M V Y
F I E F T I R Y E W E A T H E R B X X W O N S S N
O N A E N O I T L D H H D Y G S D U O L C Q U W S
M L A M R O N L I H P S L I S V S F Q B T K M T J
L E T A M I L C M O S O L L O P Z U C R Z J M Y C
O A I F W A T X S P O T T E R U T A R E P M E T C
V N V Q I I A Y S M M R P I E V Z A K E G L R K G
Z T M G O F N F R F T R N D M T A S Y Z R Y O S R
I P L N I F Y D V I A G V C H G K Y L Y E X S K I

ATMOSPHERE, BREEZY, CLIMATE, CLOUDS, ELNINO, FALL,
FOG, HAZE, ICE, LANINA, NORMAL, PRECIPITATION,
PREDICTION, PRESSURE, RADIO, RAIN, SLEET, SNOW, SPOTTER,
SPRING, SUMMER, TEMPERATURE, WEATHER, WIND, WINTER



Staff Spotlight

by Jon Bonk, Journeyman Meteorologist

If you ask a meteorologist their first memory of being interested in weather, most can pin it down to some specific event occurring between the ages of 8 and 13. My event was watching an episode of NOVA about hurricanes on PBS. While I developed my fascination with weather at age 10, it

took me nearly 20 years to turn that fascination into a very rewarding and challenging career. Being born and raised in the Pacific Northwest, I wanted to stay in Oregon or Washington for college, but at the time Oregon State and University of Washington were both planning to drop their undergraduate Meteorology programs. Frustrated, I spent my first few years out of high school trying out several majors at community college before realizing I was getting nowhere.

Quitting college, I spent the bulk of my twenties working my way up through the management ranks of Kinko's copies (now Fed-Ex Kinko's) and playing trombone semi-professionally. Kinko's was a good career that paid well, but I grew tired of the corporate life and being surrounded by staff that didn't have passion and pride in what they were doing. So I gave it all up and moved from Portland down to San Jose, CA where I enrolled in the Meteorology program at San Jose State University. During my five years there, my life changed in more ways than I expected. I met my wife Brenda (ironically while on a holiday break back in Portland), and also started making the hour and a half trip once a week to Monterey to start volunteering at the Weather Service office there.

After nearly a year of doing so, I was in the right place at the right time as some funding became available and I was offered a paid student intern position.

Would you like to get future newsletters from our web page? We will notify you by e-mail to let you know when the next issue is available. This will greatly save on paper and postal costs. Let us know by sending an e-mail to pdt.spotters@noaa.gov.

